TRADITIONAL METHOD OF TEACHING VS MODERN METHOD OF TEACHING- A COMPARATIVE ANALYSIS AT BANGALORE PRIVATE SCHOOLS

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ABSTRACT

This study is an attempt to examine the significance of Smartclass as a mode of teaching on student's performance in Bangalore private schools. An experimental research was conducted in two ICSE schools on 114 students who were selected through random sampling method, where a 10 marks unit test has been designed for a specified topic in social science subject and test was conducted after teaching a group of students using traditional method, called the controlled group and other group of students using smart class, called the experimental group. Also Primary data was gathered in the form of questionnaire both from students and the teachers. For the analysis of the data, basic descriptive statistics, percentages, t-test and graphs has been used. The results of the study show that Smartclass has significant impact in improving the performance of the students. Further research can be conducted on this topic using different subjects as a part of the experiment to analyse the impact of Smartclass on student's performance.

KEYWORDS: Modern classroom, Educational Technology, White board Teaching and Electronic Teaching.

INTRODUCTION

The role of education is the most pivotal factor in the development of any society as well as of nation as a whole. It was rightly remarked by Kothari Education Commission (1964-66) that, "The destiny of India is being shaped in its classrooms". This statement shows the importance of education in modern India. But this education should be of high quality, because only quality education can help the country to progress and bring about desired changes among its people. If the education needs to be qualitative, it must match the modern day changes and developments in the Society. But this education has become a burden for the students as they try to mug the concepts rather understanding it, they lose interest when sitting in the classrooms and this leads to their poor performance in the examination. This can be changed by making an attempt to implement modern technology in the schools which would increase the students interest in studies as well as improve their understanding. This would also help the teachers to improve their skill and way of teaching so that they can help the students in improving their overall performance.

The Indian classrooms can be segregated into broad two types 'the Traditional Classroom and the Modern Classrooms'. In the traditional classrooms the teachers use chalk and talk method where the student's are quite listeners and teachers will make use of the black board and textbooks. But in the Modern classrooms, the teachers use audio-visuals, power point presentations, charts, videos etc. In modern classrooms the teachers have realized the significance and need for presenting different learning experiences so as to overcome the individual differences among pupils and make attempts to effectively use media and methods generated by Educational Technology. Now, technology is making life easier for both students and educators. Schools are increasingly adopting digital teaching solutions to make the classroom environment more inclusive and participatory.

The advantages of technology should be exploited to the maximum to raise the quality of education and also to give meaning to teaching learning process. The National Policy on Education (NPE 1986) has emphasized upon the use of computers in higher education and for the first time in the history of Indian Education, NPE (1986) has observed that, "Educational Technology will be employed in the spread of useful information in the training and retraining of teachers to improve the quality of education". Although, several efforts had been made in the past to use technological inputs and various educational technology aspects for improving the quality of education, but still there is much left to be done so as to bring desired changes in improving the quality of present teacher education system.

Educational Technology, when the term was first coined it referred to "technology in education", implying the use of a variety of audio-visual aids (as they were then known) for teaching purposes. This widened the scope of ET as the teaching-learning process was examined in a holistic manner. The arrival of digital convergent media encouraged interactivity and interconnectivity. This added a new dimension to ET. While this field continues to evolve, has helped in improving the quality of education, students understanding and skills and also provided scope of creative teaching-learning process which helps in students overall development.

Smartclass from Educomp Solutions, one of the first Indian companies in this space. Smartclass is essentially a digital content library of curriculum-mapped, multimedia-rich, 3D content. It is prepared by the researchers of the company who thoroughly engage themselves in the curriculum of the different boards-

CBSE, ISCE and according to the updated syllabus they prepare new materials. It also enables teachers to quickly assess how much of a particular lesson students have been able to assimilate during the class. Once a topic is covered, the teacher gives the class a set of questions on a large screen. Each student then answers via a personal answering device or the smart assessment system. The teacher gets the scores right away and based on that, she repeats parts of the lesson that the students don't appear to have grasped.

Technology like Smartclass will not only improve the performance of students by improving their understanding but also show the path of new development in the field of education which would ultimately improve the quality of education. It is not just a tool to attract the students and make them attentive in the class but is also helpful to enhance their creative thinking with ample of knowledge. It is also helpful for the teachers in improving their skills and keeps them updated.

Although the importance of using Smartclass has been increasing yet it has not gained much attention in research. However, despite the organizational and systematic role of Smartclass plays important role in improving the student's performance as well as widening their scope of gaining knowledge, empirical research on the impact of using Smartclass in improving the performance of students is scarce in educational literature. So the present paper examines the impact of 'Smartclass' on the performance of the students and their attitude towards the Smartclass so that it could be implemented in all the private and well as government schools to improve the performance of the students and make them more attentive in the classrooms.

The universally accepted definition of ET involves processes, methods and techniques, products, resources and technologies organized into workable systems. The recognition of the need for a multilevel organization of a classroom, for instance, along with the designing of an appropriate programme and its implementation becomes as much an exercise in ET as the use of audio-visual aids or the information superhighway. There is also a prevalent belief that modern technologies are better than older ones.

Anderson (2005) emphasized on the role of e-learning and the research was conducted based on reviews of different literature on the same. This paper concludes that e-learning plays a very important role in teacher's development that will help in developing the overall learning in schools. Vivekananthamoorthy and et.al (2009) conducted a study in KCG college of Technology, Tamil Nadu, to determine the efficiency of teaching and learning process with the introduction of e-learning. The study concludes that by introducing an interactive system of e-learning the communication among the teachers and learners can be made effective. Dr. Srivastava (2012) conducted a study to examine the effectiveness of using an interactive whiteboard Active Board to increase student participation in the classroom. The finding of the study is that Smartclass has positive impact in increasing student's participation. McNeese (2007) has done with the primary focus on the Faculty, Staff, and Graduate Students' (FSGS) assessment of the student learning and classroom participation in SMART multimedia classrooms. The finding of the study shows students as more attentive, more willing to participate and more engaged in various types of instruction in the SMART ® classrooms. Research and Advisory Services Dun & Bradstreet Information Services India Pvt. Ltd. (2010) conducted a research to assess the usefulness and effectiveness of "Educomp Smartclass" program for enhancing student's academic performance and teacher's productivity in classroom. The key findings of the

study are the majority of the results showed positive impact of the Educomp on the student's academic performance and effectiveness of Smartclass increase with increase in experience and skill set of teachers. Ong and Ruthven (2008) conducted a study in Malaysia and UK with the objective to compare the effectiveness of smart school with the mainstream schools on student's attitude towards science. The results of the research concluded that the performance of the smart school students were better than the results of the mainstream schools. Duggirala and Sai (2010) has conducted a study in Chennai and Gujarat with the objective to examine the impact of technology-mediated learning on outcome, student's perspective The finding of the study showed that there is a positive relationship between TML and student's perspective and also on learning outcome. Sharma (2012) had conducted one research to identify the reasons of weakness of students in reading skill in English language and also suggest the remedial measures to enhance reading skills of students in the form of use of Interactive Whiteboard (IWB) in English language classroom. The finding of the study is IWB motivates students, catch their attention through audio-visual aids and bring a change in their behavior not to see the reading as a boring exercise but do it passionately to enhance their language competence.

So in quest to examine if Smartclass is really being effective in improving student's performance, skills and understanding, the present research in conducted using two methods i.e, experimental method and questionnaire method.

OBJECTIVE OF THE STUDY
1. To evaluate the significance impact of Smartclass as a mode of teaching on student's performance.

2. To examine the view of teachers on the performance of students and usefulness of smart class.

3. To analyze the views of students on their understanding while teaching through smart class.

METHODOLOGY
To evaluate all the objectives three different questionnaire has been prepared at different levels. A 10 marks unit test paper was designed in order to evaluate the effectiveness of Smartclass in improving the student's performance. Questionnaire was also prepared to collect teacher's view in improving student's performance and of student's on what they feel about Smartclass.

Sample of the study
For the purpose of the study two types of samples are taken, students and teachers to determine the impact of smart class on the performance of students. Research has been conducted in two ICSE schools which were selected purposefully. The total number of students taken was 114 and teachers were 10 in numbers.

Sampling technique
Random sampling method has been adopted while selecting the section of the students.

Tools adopted for the study
An experimental research was conducted in both the schools where a 10 marks unit test has been designed for a specified topic in social science subject and test was conducted after teaching a group of students using traditional method, called the controlled group and other group of students using smart class, called the experimental group.

Primary data was gathered in the form of questionnaire both from the students and the teachers. Descriptive statistical technique and t test technique are used to analyse the data collected.

ANALYSIS OF DATA
The present study, carried out on the lines of Experimental design. This study was conducted in two different schools which were selected purposefully. In which, a section of students from class VIII and IX were selected in School X and a section of student from class VIII were randomly selected in School Y. Then the selected section of students was randomly divided into two groups having equal numbers. In which one section was randomly assigned as controlled group and another as experimental group. With the help of the social science teacher the controlled group was taught a new topic using conventional method i.e, chalk and talk method and then a unit test of 20 marks was conducted afterwards. Again the experimental group was taught the same topic using the Smartclass and then they appeared for the same unit test which is shown in the annexure.

Also the students belonged to the experimental group were given a questionnaire having 15 questions to rate their view about Smartclass and if Smartclass being effective in improving their performance. The teachers were also given a questionnaire having 20 questions to rate the Smartclass if it has been helpful in their teaching and improving student's performance.

Analysis of Students Results using Descriptive statistics
One section of the students is randomly selected from four sections in both the schools. Students are divided into two groups of equal numbers. One group is selected randomly as Controlled group and the other as the Experimental group.

With the help of the social science teacher, a particular topic was selected which is new to the students. The controlled group was taught the topic using chalk and talk method i.e the traditional method. And the experimental group is taught using Smartclass both for half an hour. Then a 10 marks unit test is conducted for both the groups which includes multiple choice, fill in the blanks and short answer questions.

The results for the unit test and the students as well as the teacher's questionnaire have been converted using percentile method. The same has been represented below in tables and graphs.
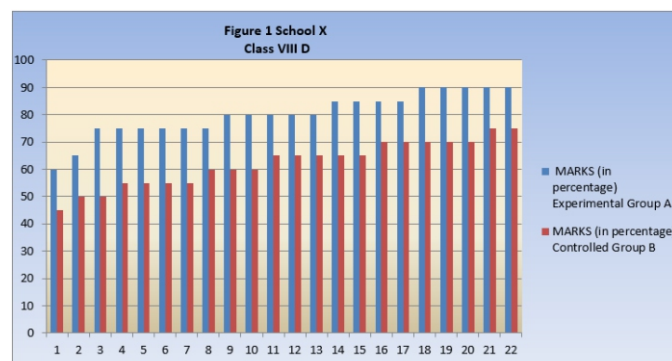
Table 1 Student's Result analysis, School X, Class VIII D

S.No	MARKS (in percentage) Experimental Group A	MARKS (in percentage) Controlled Group B
1	60	45
2	65	50
3	75	50
4	75	55
5	75	55
6	75	55
7	75	55
8	75	60
9	80	60
10	80	60
11	80	65
12	80	65
13	80	65
14	85	65
15	85	65
16	85	70
17	85	70
18	90	70
19	90	70
20	90	70
21	90	75
22	90	75

Source: Primary Data, 2013

Table 1 shows the result analyses of 44 numbers of students studying in class VIII D of School X. S.No indicates the number of students appeared for the test. With the help of the geography teacher this experiment is conducted. The students of both the group are taught the topic "Tropical Deserts" using traditional method and Smartclass one by one. Totally 44 students appeared for the test in which 22 numbers each are from experimental and controlled group. The experimental group ranked highest with 90 % score whereas for controlled group the highest score is 75 %.

The average marks of the students in the Experimental group are 80.22 % whereas the average marks of the students in the Controlled group are 62.27%. Hence it can be stated that the students belong to the experimental group who are being taught using Smartclass have scored higher than the students being taught using conventional method.

Figure 1 School X Class VIII D

The above figure 1 also represent the result of the students appeared in the experimental test as Controlled and Experimental group. It is clear from the above graph that the marks secured by the experimental group represent a higher trend than the marks secured by the experimental group.
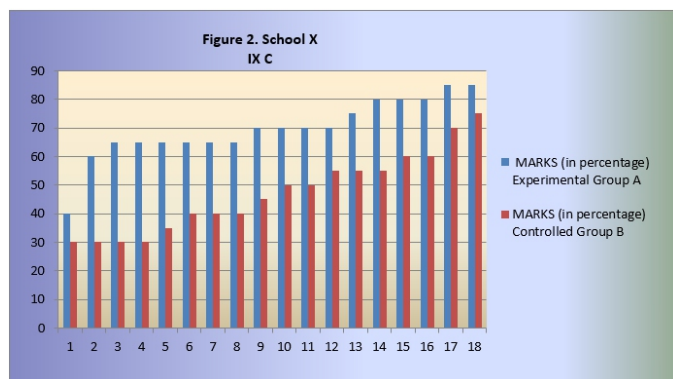
Table 2 Student's Result analysis, School X, Class IX C

S.No	MARKS (in percentage) Experimental Group A	MARKS (in percentage) Controlled Group B
1	40	30
2	60	30
3	65	30
4	65	30
5	65	35
6	65	40
7	65	40
8	65	40
9	70	45
10	70	50
11	70	50
12	70	55
13	75	55
14	80	55
15	80	60
16	80	60
17	85	70
18	85	75

Source: Primary Data, 2013

Table 2 shows the result analyses of 36 numbers of students studying in class IX C of School X. The students of both the group are taught the topic "Tropical Deserts" using traditional method and Smartclass one by one. Totally 36 students appeared for the test in which 18 numbers each are from experimental and controlled group. The experimental group ranked highest with 85 % score while the controlled group's highest score is 75 %.

The average marks of the students in the Experimental group are 69.72 % whereas the average marks of the students in the Controlled group are 47.22 %. Hence it can be stated that the students belong to the experimental group who are being taught using Smartclass have scored higher than the students being taught using conventional method.

The above figure 2 also represents the result of the students of class IX who appeared in the experimental test as Controlled and Experimental group. It is clear from the above graph that the marks secured by the experimental group represent a higher trend than the marks secured by the experimental group.

**Table 3 Student's Result analysis, School Y, Class VIII**

S.No	MARKS (in percentage) Experimental Group A	MARKS (in percentage) Controlled Group B
1	35	35
2	45	35
3	45	40
4	50	45
5	50	45
6	55	45
7	55	45
8	60	45
9	60	45
10	65	45
11	65	45
12	70	45
13	80	50
14	80	55
15	85	55
16	85	70
17	90	70

Source: Primary Data, 2013

Table 3 shows the result analyses of 34 numbers of students studying in class VIII of School Y. The students of both the group are taught the topic "Elections" using traditional method and Smartclass one by one. Totally 34 students appeared for the test in which 17 numbers each are from experimental and controlled group. Experimental group secured highest score of 90% while 70% score is secured by the controlled group as highest score.

The average marks of the students in the Experimental group are 63.23 % whereas the average marks of the students in the Controlled group are 47.94 %. Hence it can be stated that the students belong to the experimental group who are being taught using Smartclass have scored higher than the students being taught using conventional method.
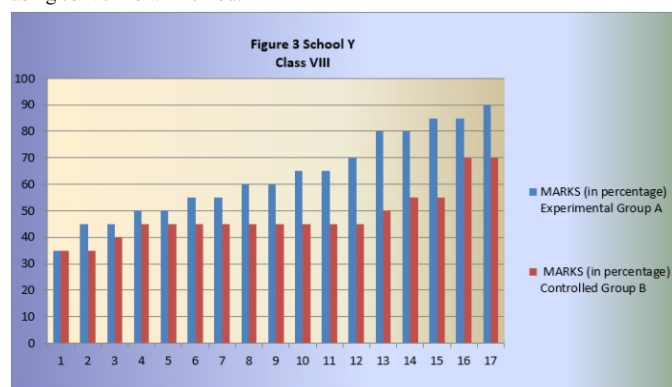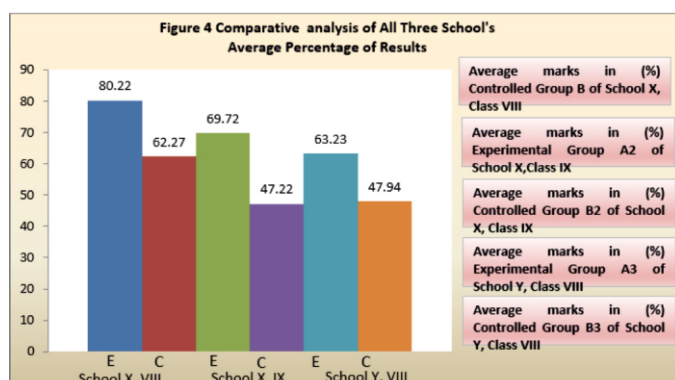

The above graph 3 represents the result of the students of class VIII who appeared in the experimental test as Controlled and Experimental group.

It is clear from the above graph that the initial marks secured by the experimental group though similar to the marks secured by the controlled group but later marks represent a higher trend than the marks secured by the experimental group.

From the student's questionnaire it can be analysed that among the students 24% students are intensely interested in the subjects being taught using Smartclass where as 76 % students are mildly interested. 18 % students like those subjects more that are being taught using Smartclass, 14 % like those subjects taught by teachers explanation only and 68 % of them like both the mode of teaching. 40 % students like the 3-D animation of the Smartclass very much, 57% like it somewhat and 3 % of them somewhat dislike the animation. 24% students find the audio used in explaining concept in the Smartclass very much clear, 65% find it somewhat clear and 11% find the audio somewhat less clear. 65% students agree that the teacher explain the concepts Everytime while using the Smartclass, 27% agree that teacher explains the concept sometime and 8% believe that teacher explain the concepts few time. 14% students like to participate in the activities at the end of every session to much greater extent, 81% like to participate to somewhat greater extent and 5% students like to participate somewhat less. 43% students agree that the concepts taught using Smartclass are very much easy, 49% agree that it is somewhat easy and 8% agree that it is somewhat less easy. 11% students find many concepts being taught using Smartclass in the question paper, 49% find some concepts, 27 % find few concepts in the question paper and 13% no concepts in the examination question paper being taught using Smartclass. 67% students agree that they are allowed to raise question every time whenever they get doubt, 22% agree that they are allowed sometime, 8% agree that they are allowed fewtime and 3% agree that they are never allowed to raise question. 3% students support that the teacher clear all their doubts at the beginning of the class, 30% support teacher clearing doubt at the end of the session and 67% supports teacher clearing doubt anytime. 43% students agree that Smartclass is very much useful in improving their understanding, 54% agree that it is somewhat useful and 3% believe it is not very useful. 30% students think that Smartclass contain extra information every time, 62% think it contains extra information sometime, 5% think it contain extra information fewtime and 3% think it never contain extra information. 19% students strongly agree that all the subjects should be taught using Smartclass, 70% agree that all the subjects should be taught using Smartclass, 11% disagree on the same. 16% students find the sessions being conducted using Smartclass extremely interesting, 73% find the sessions moderately interesting and 11% find the session slightly interesting. 16% students strongly agree that Smartclass have benefitted their overall performance, 70% agree that Smartclass benefitted their overall performance and 14% disagree on Smartclass being beneficial in their overall performance.

From the Teacher's questionnaire it can be analysed that 100% teachers are specialized in the subject they teach using Smartclass. 20% teachers strongly agree and 80 % of them agree that it is easy to teach using Smartclass rather using traditional method of teaching. 100 % teachers have been trained to use Smartclass. 60 % teachers agreed that Everytime they get training to improve their skills to use Smartclass and 40 % agreed that sometime they get training to improve their skills. 60 % teachers prepare themselves every time before teaching through Smartclass whereas 40 % of them sometime prepare themselves before teaching through Smartclass. 20% teachers find the 3-D animations very much attractive while teaching the concepts, 40% teachers find it somewhat attractive, 20% of them somewhat dislike the 3-D animation and 20% of them dislike it very much. 100% teachers accept that the audio used in teaching the concepts are very much clear. 80% teachers explain the concepts every time while teaching through Smartclass and 20% teachers explains the concepts sometime. 80% teachers opined that students participate in the activities to much greater extent at the end of every session and 20% opined that students participate to somewhat greater extent. 100 % teachers believed that students understand the concepts very much being taught using Smartclass. 20% teachers include many questions in the examination question papers and 80% teachers include some question in the examination question papers. 80% teachers agreed that students are allowed every time to raise question whenever they get doubt and 20% teachers agreed that students are allowed to raise question sometime. 40% teachers agreed that students complain sometime about the concepts not being clear and 60% agreed that students never complain. 40% teachers clear the doubts of students at the end of the class and 60% of them clear the doubts of students anytime. 100% teachers believe that Smartclass is very much useful in improving the understanding of the students. 100% of them opined that sometime it contains extra information. 20% teachers strongly agreed that all the subjects should be taught using Smartclass and 80% teachers agreed for the same. 100% parents are very much satisfied on using Smartclass to teach their children. 80% teachers think that the sessions conducted by Smartclass are extremely interesting and 20% of them think it is moderately interesting. 20% teachers strongly agreed that the Smartclass have benefitted the student's overall performance and 80% teachers agreed with the same.

Comparative analysis of all student's average score

The above figure 4 represents the comparative analysis of the average of the results of all three tests conducted in both School X and School Y.

In the above graph, the bar charts having six different colours represents the average marks in percentage of the Experimental and controlled groups in all three classes. The average marks in percentage of both the Experimental and Controlled group is represented by 'E' for Experimental group and 'C' for Controlled group. It is clear from the above graph that the students in the experimental groups have secured higher marks than the students in the controlled groups in all three classes. The average marks secured by the students of class VIII of School X belonged to the experimental group secured 80.22% as compared to the controlled group who secured 62.27 % which is also the highest score among others. The average marks secured by the students of class IX of the same school of the experimental group got 69.72 % as compared to the controlled group' s average which is 47.22 %. Lastly the marks secured by the experimental group of class VIII of School Y is 63.23 % as compared to the controlled group who secured 47.94 %.

Analysis of Students results using t-Test
Table 4 Students Result analysis Based on t-Test

t-Test: Two-Sample Assuming Unequal Variances		
	Variable 1	**Variable 2**
Mean	71.84210526	53.24561404
Variance	186.2781955	165.6171679
Observations	57	57
Hypothesized Mean Difference	0	
Df	112	
t Stat	7.484480568	

P(T<=t) one-tail	8.76792E-12	
t Critical one-tail	1.658572629	
P(T<=t) two-tail	1.75358E-11	
t Critical two-tail	1.981371752	

Table 4 represents the scores of all the students appeared in the test as experimental and controlled group. Here α value is taken as 0.05 with 95 % confidence level. The result of the t-test shows that the t Stat value is 7.484480568 which is greater than the t Critical two-tail value 1.981371752 (t Stat value > t Critical two-tail value). Also the P(T<= t) two-tail value is 1.75358E-11 i.e. 0.0000000000175358 which is less than the α value 0.05 (P<α). So based on the results of t-test, the null hypothesis is rejected and alternate hypothesis is accepted. The difference in the scores of Experimental and Controlled group is highly significant. Therefore, it can be concluded that Smartclass is highly effective in improving Students performance.

RESULTS AND DISCUSSION
Based on the results of unit test, students of the experimental group scored higher than the students of the controlled group in all the three classes of both the schools. Majority of the students of the experimental group who are being taught using Smartclass secured highest position with more than 70% compared to the students of the controlled group who are being taught using chalk and talk method. So the result shows that Smartclass has positive impact in improving performance of the students.

On the student's questionnaire, there were no questions that were rated anything less than agree. All fifteen questions from all students have showed that they have agreed that Smartclass in benefitting them though some of them have not strongly agreed on that. All the students have favored the use of Smartclass for teaching all the subjects as it helps improving their understanding to some extent. The statements with which the students agreed most often were all related to enjoying using the whiteboard in the classroom. Most of the students agree that Smartclass have improved their overall performance. So the result shows that Smartclass has positive impact on student's overall performance though not to a greater extent but to some extent.

Based on the teacher's questionnaire, it can be seen that majority of the teachers agreed that Smartclass has improved the understanding of students. It has not only improved their performance but it also helps the students to be attentive in the classroom. The teachers also agreed that the students enjoy the sessions and actively participate at the end of every session. So the result shows that Smartclass has been effective in improving the overall performance of the students in the classroom.

Based on the comparative analysis of all three groups of both the schools which is represented by figure 3, it is clear that all three experimental groups secured highest marks than the three controlled groups. Also the marks of Schol Y seemed to be highest for the experimental group than the marks of other two experimental groups of students, which may depend on several factors like unobserved student's characteristics, unobserved teacher's characteristics or level of understanding of the students which is not considered in this study.

The finding of the study based on the t-test performed on student's scores, the study rejects the null hypothesis and accepts the alternate hypothesis. The results clearly show that Smartclass is highly effective in improving the student's performance compared to the traditional method of teaching. Therefore, suggestions can be made based on the findings that more schools should introduce Smartclass as a mode of teaching as it would change the scenario of "learning burden". Smartclass help students to learn without losing their interest, make them attentive in the classroom and ultimately improve their performance.

CONCLUSION
The Educomp Smart Class programme has an overall positive impact on students more in terms of generating curiosity, grasping complex concepts and capturing attention rather only make the classroom attractive while it helps teachers in managing time.

The use of an interactive whiteboard as an instructional tool in classes VIII and IX has proved to be statistically significant in improving the performance of students in terms of their scores. The objective of this study was to evaluate the significance of Smartclass as a mode of teaching on student's performance which has been achieved by conducting experiment in the two ICSE schools.

It is felt that the students would appreciate the greater opportunities to use the active board as they have demonstrated excitement and eagerness in using it. The results indicate that the students who participated in the research enjoy the use of the Smartclass as an instructional tool and believe that it helps to provide additional opportunities for learning over the traditional method of teaching.

The present study evaluates the impact of Smartclass on the student's performance considering social science subject only due to limited time period. There is further scope of conducting research on the same topic in future in which more

subjects can be used in the experiment to evaluate the impact of Smartclass on them. Also more number of schools can be involved to conduct the research which would require long duration of research.

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